Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of	)	
	)	
Connect America Fund	)	WC Docket No. 10-90
	)	
ETC Annual Reports and Certifications	)	WC Docket No. 14-58
	)	
Rural Broadband Experiments	)	WC Docket No. 14-259

Reply Comments of Crocker Telecommunications, LLC.

Crocker Telecommunications, LLC., files these reply comments regarding the Federal Communications Commission's Connect America Fund Report and Order and Further Notice of Proposed Rulemaking, FCC 16-64.

Weights

The Commission laid out a proposed formula for weighting in paragraphs 205, 209 and footnote 406[1]. Numerous comments suggest bids that do not fit within these parameters or seek to change the formula altogether. Accepting such comments would necessitate at least two more rounds of comments, setting this process back many months. We therefore strongly suggest that the Commission reject all comments not to weight bids or tiers of bids (RWA[2]) and reject all suggestions that do not fit within the currently published formula (Hughes[3], ACA[4]).

Secondly, assigning incremental weights of 5-50 per tier are entirely insufficient (ITTA[5], UST[6]). The way the **published** formula works, an incremental weight of 50 allows bidders in the minimum tier (which is substantively less expensive to deploy) to bid slightly less than half the maximum reserve price and still win. Would the auction be a success if every high cost unserved household was "passed" by satellite or last generation DSL and offered 10 mbps speeds, for $100M? The Commission has a statutory goal of ensuring consumers in rural and high-cost areas have access to services "that are reasonably comparable

[1] Report and Order and Further Notice of Proposed Rulemaking, FCC 16-64, May 26, 2016.
[2] Comments of the Rural Wireless Association Inc., before the Federal Communications Commission. RWA CAFII Comments-FINAL.pdf. Posted 7/22/2016.
[3] Comments of the American Cable Association., before the Federal Communications Commission. ACA_CAF_Phase_II_Comments_07212016.pdf. Posted 7/22/2016.
[4] Comments of Hughes Network Systems LLC., before the Federal Communications Commission. Hughes CAF Bidding comments 7-21-16 FINAL-cleaned.pdf. Posted 7/21/2016.
[5] Comments of ITTA., before the Federal Communications Commission. ITTA Comments on CAF II Auction FNPRM As Filed 072116.pdf. Posted 7/22/2016.
[6] Comments of US Telecom, before the Federal Communications Commission. USTelecom-CAF-Auction-Comments-2016-07-21-FINAL.pdf. Posted 7/22/2016.

to those services provided in urban areas" (see 47 U.S.C. § 254(b)(3)).

ViaSat and Hughes have already launched satellites. As publicly traded, long-term providers of satellite-based broadband services, the economic viability of such a business decision was affirmed with the decision and authorization by each of these companies to build and launch their network of satellites. Their plans to launch a new series of satellites using improved technology for bandwidth and volume are also decisions that have been made prior to any receipt of high cost or extremely high cost support to serve areas that are uneconomic for private investment. Selecting such a bid amounts to a transfer of wealth from U.S. taxpayers to ViaSat and/or Hughes shareholders.

Several Commissioners have publicly stated that the goal of the auction is to solve the rural broadband problem – in Phase 2, to solve for those households stranded by the Price Cap carriers. Would the auction be a success if these already stranded rural households are stuck with substantively sub-par broadband connectivity to the internet for the next 10 years? Would the auction be a success if the Federal Government needs to continue to subsidize subpar networks for rural households in perpetuity? Congress and the FCC have determined that voice services and now broadband services are a fundamental necessity for American households in the 21st century, resulting in statutory requirement to ensure consumers in rural and urban high-cost areas have access to reasonably comparable services. This auction should strive to deliver as much benefit as possible for the existing funds and purpose, and weight the "best value bid" that will provide the foundation for broadband services that ensure access to comparable services throughout all regions at the lowest effective cost substantively over the "lowest price bid". As we stated in our initial response to the Order, any bid under the reserve price in a Tier should beat any bid in any lower tier. **Therefore, weights in increments of 100 per tier (and 100 for low latency) are absolutely fundamental to an optimal auction outcome.**

Sufficient Funds

Verizon discusses not having enough money to fund all locations, but it appears to us that at the modeled reserve price (which should be the maximum bid per location) there are enough funds for most, if not all of the capital expense requirements for every high cost location (~$3,300 / location over 10 years). It is interesting to note that of the ten carriers who were eligible for CAF Phase II funding, Verizon is the only carrier who did not accept any funding in their service territories. (The only funding that they accepted was conditioned upon the transfer of the properties in Texas in California to Frontier.) What insight does Verizon now possess concerning the model-based support that the other nine Price Cap carriers did not possess? Out of $1.675B in annual funding over a six-year period, $1.5B in annual funding was accepted by these nine carriers.

Extremely high cost locations are scattered throughout the country and present an order of magnitude harder challenge (including many being located in the middle of competitive territory and therefore having operational support issues, needing substantively more capital to deploy 'stranded' locations, etc.). But these categories should not be conflated. If high cost households are awarded at or below their reserve price (as required by paragraphs 90 and 209[7]), there will be adequate support over the ten-year period to pass all of the funded locations, particularly when then FCC completes the recalculation of the funded locations to develop a new weighted average of all of the locations in each funded census block (see paragraph 51)[8]. Weighting bids will not change this reality. With the Remote Areas Fund and the intent to move to an auction for those locations that remain unserved after the Phase II CAF auction, the FCC has established a process to provide support to any high cost or extremely high cost Price Cap location that remains unserved after the CAF Phase II Price Cap Auction.

[7] FCC -16-64, Report and Order and Further Notice of Proposed Rulemaking. May 26, 2016.
[8] FCC -16-64, Report and Order and Further Notice of Proposed Rulemaking. May 26, 2016.

911 Downtime

ViaSat and Hughes are suggesting Geostationary Orbiting satellites – which in the absence of an alternative may be the only possible outcome for some locations. But the Commission should recognize the substantive risks and downside of voice and broadband services provided by equipment in geostationary orbit, in particular unavoidable outages caused by the sun. Satellite provider Intelsat provides a concise description of sun outages on its website[9]:

"Geostationary satellites are stationed at approximately 22,300 miles (36,000 kilometers) from Earth and located directly over the equator. Given the equator is offset by 22.5 degrees, the sun aligns directly with satellites and receiving earth stations twice a year—once in the spring and once in the autumn ... This event is called a sun outage, and is also known as sun fade or sun transit...the noise floor, as seen by the receive earth station, is significant enough that it rises above the satellite's carrier signal and causes a temporary loss of reception…

The duration of the solar interference depends on the receive antenna's location on the Earth, the satellite's orbital location above the equator, the size of the receive antenna and the reception frequency. These sun outages start with a signal loss of only a few minutes. The outages start small—when the sun is very near alignment with the satellite and the earth station.

The sun's thermal energy is strong enough to temporarily interfere with the satellite signal and cause an outage as it approaches direct alignment. Each day as the sun moves further north, the sun's alignment with the satellite and earth station move ever so slightly. As the sun becomes more aligned with the satellite and the earth station on the ground, the outage duration increases. Peak outage time occurs when the sun, satellite and the earth station are exactly aligned with each other. The interference declines gradually as the sun starts moving away from the satellite and earth station alignment, until it is no longer a factor—until the next interference season when the sun starts heading south (northern hemispheric in autumn).

Given that all geostationary satellites are over the same geographic plane—the equator—and orbiting at the same distance, 22,300 miles or 36,000 kilometers, the sun outage will apply to every antenna at a given location."

The FCC currently fines carriers for 911 down time[10] – rightfully so, as there are now public records of deaths occurring as a result:

- https://www.washingtonpost.com/local/public-safety/two-fatal-emergencies-during-911-outage-in-montgomery/2016/07/11/6ffa023e-47bc-11e6-bdb9-701687974517_story.html

In Report and Recommendations, Public Safety Docket No. 14-72[11], the Report states: *"Commission rules require that communications providers (e.g., wireline, wireless, cable, satellite, Voice over Internet Protocol (VoIP)) report major disruptions to voice communications to the Commission. The general threshold for reporting is an outage that potentially affects 900,000 user minutes and lasts at least 30 minutes. When an outage such as the April 2014 multistate outage affects or even potentially affects a*

[9] http://www.intelsat.com/tools-resources/library/satellite-101/satellite-sun-interference/
[10] http://www.ems1.com/public-safety/articles/2156985-FCC-fines-two-companies-for-multi-state-911-outage/ and http://juneauempire.com/state/2016-07-07/fcc-fines-gci-24m-911-failures
[11] Footnote #5: PSHSB Case File Nos. 14-CCR-0001-0007, A Report of the Public Safety and Homeland Security Bureau, Federal Communications Commission, October 2014.

PSAP, the provider is also required to contact the PSAP "as soon as possible" with *"all available information."*

Is the Commission willing accept the scientific fact that with increased satellite use for voice services the above scenario will be a twice yearly, regular occurrence that cannot be engineered around? Is the Commission willing to add to 911 down-time due to human error with additional 911 down-time due to known network deficiencies? Is it appropriate to provide consumers with services that are not comparable to their current level of service and to provide support to companies that are providing the substandard service?

And, given the process prescribed in the Order for an incumbent ETC to be relieved of ETC obligations if federal support is awarded to another ETC, it is likely that the only option that a rural customer in locations served by a satellite-broadband provider may have for voice services will become voice services over the satellite-broadband connection: *"Price cap carriers that decline the state-level commitment will have the federal high-cost universal service obligation to offer voice telephony services in those census blocks that are determined to be high-cost or extremely high-cost, and unserved by an unsubsidized competitor, until they are replaced by another ETC that is required to offer voice and broadband service to fixed locations that meet the Commission's public service obligations"* (see paragraph 52[12]).

Also, the inclusion of satellite-broadband and high latency services as a competitive option may impact high cost or extremely high cost locations as traditional providers of voice services may be relieved of their obligations to offer voice telephony regardless of an award of support: "*Incumbent price cap carriers shall be relieved of their existing federal high-cost universal service obligations to offer voice telephony service in census blocks served by unsubsidized competitors on the date that there is a determination that there is an unsubsidized competitor offering 10/1 Mbps in those census blocks*." (see paragraph 69[13]). Both Hughes and ViaSat have stated in their comments that they can support the baseline 10/1 and voice telephony based on their currently deployed satellite-based broadband networks.

The inclusion of high latency voice telephony services has created a basis for low latency, traditional voice telephony to be replaced with high latency, voice telephony over satellite-broadband networks. The auction should absolutely not bias outcomes in favor of solutions that are fatally flawed from the outset. Lives are literally at risk. **A low latency weight of 100 is absolutely required to ensure this outcome.**

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[12] FCC 14-190, *CAF Phase II Order*, December 18, 2014.
[13] FCC 14-190, *CAF Phase II Order*, December 18, 2014.